

REMARKS

1. INTRODUCTION

Applicant thanks the Examiner for the indication of allowable subject matter in claims 17, 19, 20, 24 to 26 and 31. Applicant has amended claims 1, 3, 5, 10, 11, 19, 26, 28 and 29 and has cancelled original claims 2, 4, 12 and 32, the latter claim being an independent claim. New dependent claims 33 to 35 are being added at this time. Applicant respectfully requests reconsideration of the application in view of the foregoing amendments and the following arguments.

2. AMENDMENTS TO THE SPECIFICATION

The applicant has amended paragraphs 6 to 8 so that the paragraphs correspond to amended claims 1, 10 and 29. Support for these amendments can be found throughout the specification and drawings, including original claims 2 and 4, the subject matter of which is now included in claim 1. Accordingly, applicant submits that these amendments do not add any new matter. Original paragraph [0009] has been deleted since original claim 32, which corresponded in its wording to this paragraph, has been cancelled from the application.

3. AMENDMENTS TO THE CLAIMS

Applicant has amended claim 1 so as to include substantially all of the subject matter of former dependent claims 2 and 4. This claim 1 now requires that the second plate member be integrally connected to the first plate member and that it include a substantially planar portion secured to the first side of the core member and extending over the first side a predetermined distance from the one end of the core member. Furthermore, the claim requires that the second plate member includes a crossover recess defined by an outwardly projecting area formed in the planar portion. Independent method claim 29 has been amended in a corresponding manner. Thus, claim 29 also requires that the second member include a substantially planar portion secured to the side of the core member defining the first set and a crossover recess defined by an outwardly projecting area formed in the planar portion. Also, the second member of the first end cap must be "integrally connected to" and extend from the first member of the first cap end. Again, support for these amendments to independent claims 1 and 29 can be found throughout

the specification and drawings, including original claims 2 and 4. Claim 5 has been amended simply to make it dependent upon claim 1. Claim 10 has been rewritten as a dependent claim and now includes all of the features of amended claim 1.

The dependency of claim 11 has been corrected and it is now dependent on claim 10. The dependency of claim 19 has been amended so that there will be a proper antecedent for the term “the planar core plate” which is introduced in claim 15. In claim 26, the term “the first member” has been replaced by the term – the first section – which has a proper antecedent in amended claim 10.

With respect to new claims 33 to 35, claim 33 introduces the feature of the bend relief which is formed between the second plate member and the first plate member. This feature is clearly illustrated in original Figures 1, 5 and 6 and it is described in paragraph 38. The purpose of the bend relief is to assist in achieving “a robust orthogonal relationship between the circuiting and plug portions 48, 46”.

With respect to the subject matter of new claim 34, support for this feature can be found in paragraph 40 which states that the end caps 38, 40 can be “formed out of brazing clad aluminium”. In the same paragraph, it is stated that embodiments of the heat exchanger can be made by “assembling the components and brazing or soldering them together”.

New claim 35 is similar to claim 33 in its subject matter, except that claim 35 specifies that the bend relief is provided both in the first end cap and the second end cap, a feature clearly shown in Figure 6, for example.

4. REJECTION OF CLAIMS 1-5, 8-10, 21-23, AND 27-29 UNDER 35 U.S.C. § 102(b)

Claims 1 to 5, 8 to 10, 21 to 23 and 27 to 29 stand rejected under 35 U.S.C. § 102(b) on the grounds that the subject matter of these claims is anticipated by the teachings of Chadburn (US Patent No. 2,981,520). Applicants respectfully submit that the rejection of these claims under 35 U.S.C. § 102(b) is improper and/or has been overcome because the cited reference does not disclose or suggest all of the limitations recited in the claims. In re Paulsen 30 F.3d 1475, 1478-79, 31 U.S.P.Q. 2d 1671 (Fed. Cir. 1994); Verdegaal Bros v. Union Oil Co. of California 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1997) (“A claim is anticipated only if each and every element

as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”). Accordingly, Applicant requests reconsideration and withdrawal of this rejection in view of the amendments to claim 1 and claim 29 made herein and the following remarks.

Referring to the reference numerals therein, Chadburn discloses a plate-type heat exchanger made from an extruded panel member (11) in which are formed a plurality of transversely extending, parallel passageways (12). The panel has a top wall (13) a bottom wall (14) and dividing walls (15) that separate the passageways. There is an inlet aperture (16) at one corner and an outlet aperture at an opposite corner located at the opposite end of the heat exchanger. A plurality of cross-over apertures (18) are formed along the opposite edges of the panel member in the top wall with the apertures (18) on one edge being offset from the apertures (18) on the opposite edge. The ends of the passageways (12) are closed by means of two header members (20) of similar construction. Each member (20) has a U-shaped portion (21) which acts as a header for the flow of fluid through the passageways (12). The member (20) has a number of ribs (22) which seat on so called lands (19) formed on the panel member. Note that opposite edges of each member (20) are welded at (23) and (24) to adjacent edges of the panel member to complete this heat exchanger.

It will be recognized from this review that amended claim 1 distinguishes patentably and clearly over the teachings of Chadburn by reciting the following features:

- (1) The second plate member must include a substantially planar portion secured to the first side of the core member and extending over the first side a predetermined distance from the one end of the core member (In the reference, the flow path between the passageways (12) is defined by U-shaped portion (21) of the header member and ribs (22)); and
- (2) The second plate member includes a crossover recess defined by an outwardly projecting area formed in the planar portion (In the reference, the crossover passage at the ends of each pair of passageways is formed by the U-shaped portion of the header).

The construction of the second plate member as now recited in claim 1 has advantages over that taught by Chadburn. The structure required now by claim 1 makes it easier to attach the second plate member to the side of the core member because of the overlapping surfaces. This construction avoids the use of a T-joint or a chamfered welded joint such as those required by the Chadburn heat exchanger. Furthermore, it is believed that it would be difficult to seal the ribs (22) with their respective lands (19) formed on the panel member and the heat exchanger construction recited in claim 1 does not require such end-to-end joints. This can be clearly seen in Figure 5 of the drawings, for example.

With respect to dependent claims 3, 5 and 8 to 10, it is submitted that these claims are allowable over the Chadburn reference for the same reasons as claim 1. The same comments apply with respect to dependent claims 21 to 23, 27, and 28. With respect to independent method claim 29, as indicated, this claim recites method steps and structure which result in the production of a heat exchanger having all of the distinguishing features mentioned above in connection with claim 1. Accordingly, it is submitted that method claim 29 is allowable for reasons similar to those set out above for claim 1.

With respect to the rejection of independent claim 32, this objection is moot since claim 32 has now been cancelled from the application.

5. REJECTION OF CLAIMS 6, 11, 12 AND 16 UNDER 35 U.S.C. § 103(a)

Claims 6, 11, 12 and 16 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Chadburn in view of Wu et al. (US published application 2003/0164233).). Applicant has canceled claim 12. Applicant respectfully submits that the rejection is improper because the Examiner has failed to establish a prima facie case of obviousness with respect to the remaining claims as amended.

“Patent examiners carry the responsibility of making sure that the standard of patentability enunciated by the Supreme Court and by the Congress is applied in each and every case.” MPEP § 2141 (emphasis in original).

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations.

MPEP § 2143. Because the combination of references cited by the Examiner do not teach or suggest all of the limitations recited in claim 1, Applicants submit that the rejection of dependent claims 6, 11, and 16 under 35 U.S.C. § 103(a) is improper and/or has been overcome. Accordingly, Applicants request that the rejection be withdrawn.

All of the rejected claims are dependent directly or indirectly on claim 1 which distinguishes over the Chadburn reference for the reasons indicated above. The Wu et al. published application has simply been cited for its teaching of a series of spaced apart fins (44) which extend from an outer surface of a substantially flat plate on one side of a heat exchanger. However, even if it were obvious to combine the teachings of the Wu et al. application with those of Chadburn, the aforementioned deficiencies in the teachings of Chadburn would still not be overcome. In other words, there is no teaching in the Wu et al. reference of any second plate member (which is integral to a first plate member) having a substantially planar portion secured to the first side of a core member and extending over the first side a predetermined distance from one end. There is also no teaching of such a second plate member which has a crossover recess defined by an outwardly projecting area formed in the planar portion.

In Wu et al., the fluid flow passages are sealed off at their ends by the shape and construction of a plate member such as cover plate (18) which is formed with a sidewall flange extending about its perimeter.

Because the combination of Chadburn and Wu, et al. does not teach or suggest all of the limitations recited in claims 6, 12, and 16, Applicant submit that the rejection of these claims 35 U.S.C. § 103(a) is improper. Accordingly, Applicants request that the rejection of these claims under 35 U.S.C. § 103(a) be withdrawn.

6. REJECTION OF CLAIMS 7 AND 30 UNDER 35 U.S.C. § 103(a)

Claims 7 and 30 stand rejected under 35 U.S.C. § 103(a) as unpatentable in view of the aforementioned references to Chadburn and Wu et al. and further in view of Lee (WO94/23449). However, the Lee reference has only been cited for its teaching of the outer ends of fins and successive fin sections being angled in alternating directions. In particular, the Examiner has relied upon the construction illustrated in Figure 13. In the version of Figure 13, there are segmented fin elements in which the segments are mounted at predetermined acute angles on the base plate. As shown in Figure 13, segments in adjacent rows are first angled inwardly and next angled outwardly and this continues to provide a pattern of alternate one segment offsets for interruption of fluid flow. However, it is clear from a review of the rest of this specification, including the drawings, that there are no teachings in this PCT application which overcomes the aforementioned deficiencies in the Chadburn reference as set out above in connection with claim 1. In other words, this reference also fails to disclose a second plate member (which is integrally connected to a first plate member) and which extends over the first side of a core member a predetermined distance from one end of the core member and defines with a first side of the core member a flow path between flow openings. In addition, there is no such second plate member which includes a crossover recess defined by an outwardly projecting area formed in the planar portion of this plate member. Accordingly, claims 7 and 30 are allowable over the cited combination for the same reasons as stated for claim 1.

Because the combination of Chadburn, Wu, et al., and Lee does not teach or suggest all of the limitations recited in claims 7 and 30, Applicant submit that the rejection of these claims 35 U.S.C. § 103(a) is improper. Accordingly, Applicants request that the rejection of these claims under 35 U.S.C. § 103(a) be withdrawn.

7. REJECTION OF CLAIMS 6, 7, 11 TO 16 AND 18 UNDER 35 U.S.C. 103(a)

Claims 6, 7, 11 to 16 and 18 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Chadburn in view of Gutgesell (DE 298 03 166). However, Gutgesell has merely been cited for its teaching of spaced apart fins (14) extending outwardly from a second side of a heat exchanger wherein the outer ends of the fins in successive fin sections are angled in alternating directions. The Examiner particularly relies upon the construction illustrated in Figure 13. Although the Gutgesell appears to show spaced-apart fins which extend from one side of a heat exchanger and which extend in different directions at an angle, there is no indication from the drawings of this reference that the above-mentioned deficiencies in the Chadburn reference are overcome by the teachings of this German reference. In addition with respect to the subject matter of dependent claim 7, there appears to be no indication from the drawings of the German reference that the fins are divided along a longitudinal length thereof into successive fin sections. Thus, although the fins themselves may extend at an angle in alternating directions, there appears to be no suggestion or indication in the German reference that the fins extend in alternating directions on the basis of fin sections extending along the longitudinal length of the fins. Thus, claim 7 does patentably distinguish over the cited combination for this reason as well.

Similarly, with respect to dependent claim 14, a review of the drawings of the German reference indicates that it does not in fact teach a core plate which has first and second longitudinal edge portions on opposite sides of a central portion thereof with “the longitudinal edge portions being angled relative to the central portion”. Claim 14 is directed to the embodiment illustrated in Figure 17B of the drawings and it will be readily seen that no similar construction for a finned core plate is taught in the German reference.

As noted above, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claimed limitations (see MPEP Section 2143). Applicant submits that the combination of the

Chadburn reference and the other references relied upon by the Examiner do not disclose or suggest all of the limitations now recited in the claims.

Applicant submits that the rejection of independent claims 1 and 21 on grounds of anticipation has been overcome and requests that the rejection of these claims be withdrawn. Similarly, at least because the remaining claims in the application depend from one of the aforementioned independent claims, applicant submits that the rejections of these dependent claims under 35 U.S.C. 103(a) have also been overcome and requests that these rejections be withdrawn.

8. CONCLUSION

For the above reasons, all of the claims presently pending in this application are believed to be allowable. If the Examiner has any further questions or concerns, the Examiner is invited to contact the applicant's undersigned attorney.

Respectfully submitted,

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